

REMARKS

Claims 1 - 2, 4, 11, 13 - 15, 18 - 22, and 24 - 44 are pending with claims 3, 5 - 10, 12, 16 - 17, and 23 canceled and claims 32 - 44 added. In addition, claims 19 - 21 are withdrawn.

Claim Rejections Under 35 U.S.C §112 and §101 and Claim Amendments

The Preliminary Amendment filed 17 August 2001 amended claims 3, 5 - 10, 12, 16 - 17 and 23 to eliminate multiple dependencies. However, this amendment was inadvertently filed. Particularly, none of the claims as originally filed in the application on 17 April 2001 were multiply dependent and the amended claims as depicted do not correspond to the claims as originally filed.

Consequently, Applicants have canceled claims 3, 5 - 10, 12, 16 -17 and 23 and have added new claims 32 - 42 which have the substantive features of claims 3, 5 - 10, 12, 16 - 17 and 23 as originally filed. Moreover, Applicants have amended the dependency of the claims in light of these cancellations and additions.

As such, Applicants respectfully submit that the rejections are no longer applicable in view of the new claims. In addition, Applicants respectfully submit that these amendments do not narrow the scope of the claims because these amendments filed solely to correct the inadvertent filing of the preliminary amendment, are of a clarifying nature, resolving typographical inconsistencies in the claims.

Claim Rejections Under 35 U.S.C §103

Claims 1 - 18 and 22 - 31 stand rejected over U.S. Patent No. 5,282,994 (Salyer) in view of U.S. Patent No. 4,585,572 (Lane). Applicants respectfully traverse these rejections.

At the outset, neither of these references teach or suggest at least one heat storage material having at least one solid/solid phase transition and being solid throughout the application range. Salyer pertains to a silica carrier for a phase change material (PCM) so that

the combination will not form a rigid solid at temperatures below the melting point of the PCM and will not liquefy upon heating of the PCM above its melting point. See, e.g., column 2, lines 26 - 34 and column 4, lines 14 - 24. Thus, Salyer provides a carrier for a conventional liquid/solid PCM.

Although Salyer discloses that quaternary ammonium halide clathrates can be used as a PCM, it is clear that these clathrate ammonium halides are conventional solid/liquid PCMs. See, e.g., column 2, lines 40 - 47 and column 5, lines 9 - 52. Lane pertains to a surface active thickening agent of an amine for a reversible liquid/solid PCM. See, e.g., column 1, and lines 5 - 10, and column 5, lines 24 - 69. Thus, both references pertain to elements for improving a liquid/solid PCM, not a heat storage material having at least one solid/solid phase transition. So even if the references are allegedly combinable, the alleged combination would not render the claimed invention unpatentable.

Moreover, there is insufficient motivation to combine these references. As discussed above, Lane pertains to an amine surface-active thickening agent. The thickening agent is used to stabilize a PCM during incongruent melting. See, e.g., column 3, lines 24 - 34. Salyer pertains to a PCM-matrix composition that has the properties of a sand pack by adding a silica carrier to stabilize the PCM. Consequently, there would be insufficient motivation for one of skill in the art to add a thickening agent which prevents separation of a PCM during incongruent melting with a PCM-matrix that has the properties of a dry powder. See, e.g., column 4, lines 14 - 24 of Salyer.

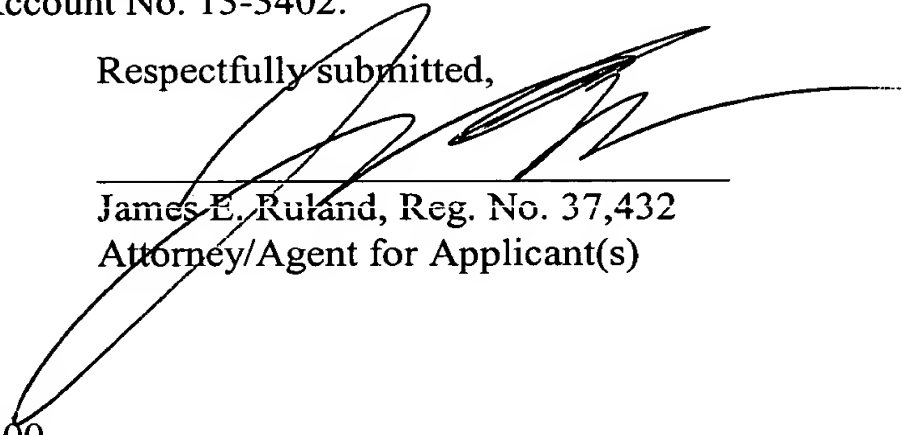
What is more, the combined teachings of these references fail to teach or suggest the average crystalline size of about 0.1 - to about 1000 μm (relevant to claims 35, 43 and 44).

Consequently, Applicants respectfully submit that these rejections should be withdrawn.

In view of the above remarks, favorable reconsideration is courteously requested. If there are any remaining issues which can be expedited by a telephone conference, the Examiner is courteously invited to telephone counsel at the number indicated below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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